The CHEMIST

DECEMBER, 1935 VOLUME XII, NO. 9

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Laminated Safety Glass

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Professional Ethics

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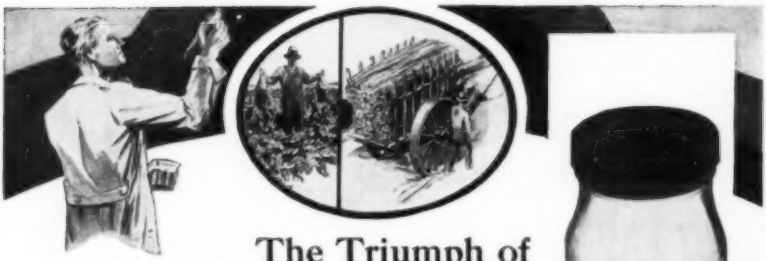

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The CHEMIST

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V. F. KIMBALL, *Editor*, 233 Broadway, New York City

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THE AMERICAN INSTITUTE OF CHEMISTS
HOWARD S. NEIMAN, *Secretary*
233 Broadway
New York, N. Y.

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Objectives of the American Institute of Chemists

To give chemists professional solidarity.

To put the profession back of a definite code of ethics.

To insist on adequate training and experience qualifications.

To educate the public to an understanding of what a chemist is.

To protect the public and the profession by fighting quackery.

To raise the economic status of chemists.

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EDITORIALS BY COUNCILORS—III

Supply and Demand

By Alan Porter Lee, F.A.I.C.

The Treasurer of the Institute calls attention to a potential demand for supplies which exceeds present production facilities.

RECENTLY, there have been many voices raised in the cry that mankind has entered a machine-made wilderness, that inventive progress has overreached itself and become a sort of Frankenstein's monster about to destroy its creators.

That such doubts and fears can rise in the hearts and minds of men and women is a sad commentary upon the rationality of the human race. In a recent issue of *Fortune* was published a synopsis of a fact-finding survey recently completed by the Brookings Institute under the auspices of the Falk Foundation. This survey shows clearly that potential demand exists in the United States alone for far more of all the products of our industry than our present production facilities can possibly meet.

The problem is purely one of distribution of goods and services. The mountaineer of the Southern Appalachians does not now demand a porcelain bathtub, an electric refrigerator, or a stream-lined automobile. Some few years ago, however, many of those same mountaineers discovered that their temperament made them peculiarly capable of earning good wages as skilled tire builders in Akron, Ohio, and they are now demanding and enjoying the above-mentioned luxuries (now necessities to them) in their new home. The invasion of their old homes by the great chemical silk industries is likewise making the stay-at-homes conscious of the possibility of rendering service to industry, which service is exchangeable for a broader, happier mode of life than they have ever known before.

We have taken but one or two quickly quoted examples, but the rule holds good wherever new groups acquire the golden opportunity of service to productive industry. So, quickly and easily, capital can solve the apparent problem of over-production due to machine and process development, if capital will but dare to do. Let it take the surplus men, those released from present industry by machine adaptation, and the surplus funds now reposing in our banks for lack of industrial outlets. With these two ingredients, men and funds, let *new* industries, producing new comforts and luxuries for mankind, be established, giving more individuals the opportunity to serve industry and the attendant wages with which to buy the products of industry, old and new, as well as of farms.

America is a land of natural resources. Every one will agree that the United States can support a population at least triple the present one. Who can doubt that, given an opportunity to serve and to earn, all of our people will keep all of our people busy producing goods to meet our mutual wants?

Annual Meeting

The 1936 Annual Meeting of THE AMERICAN INSTITUTE OF CHEMISTS will be held in May, 1936, at Buffalo, New York. The Niagara Chapter of the Institute is making plans for a most attractive program, including a banquet at which the Medal of the INSTITUTE will be awarded "for noteworthy and outstanding service to the science of chemistry or the profession of chemist in America." The recipient of the Medal and the complete program for the annual meeting will be announced later.

Civil Service Examination

A vacancy in the Alcohol Tax Unit, Treasury Department, Washington, D. C., will be filled as a result of an examination for position of Senior Chemist (Distillation), at $4,600.00 a year. Applications must be on file with the United States Civil Service Commission at Washington, D. C., not later than January 6, 1936. Degree and six years of experience are required. Necessary application forms may be obtained from the Civil Service Commission at Washington, D. C., from any first-class post office, or from district offices.

Laminated Safety Glass

By J. W. H. Randall, F.A.I.C.

In a talk before the New York Chapter of the Institute, a consulting chemist discusses the contribution of chemists to the laminated glass industry.

LAMINATED safety glass as we know it today as automobile wind-shields and side windows, is a comparatively new product, developed through the close coöperation of the chemist and engineer. It consists of a sandwich of two sheets of glass, each approximately $^1/_8$ inch in thickness, between which a sheet of transparent colorless plastic material of about $^{20}/_{1000}$-inch in thickness is cemented. Both drawn and plate glass are used, but the trend is more and more toward plate since it has truer surfaces, which not only present a better appearance, but eliminate distortion of light and view.

History

As early as 1860, a provisional patent was granted in England to Jules Bénèche who produced upon a sheet of transparent and colorless gelatinous matter pictures or designs; he spread this sheet (after coating it with some transparent and colorless resinous preparation) upon a sheet of glass and then covered it with a second sheet of glass. To quote: "The whole is then placed in a press and shortly forms a solid and unalterable body." This product was suggested for use in church windows, and the like.

However, it is generally conceded that Wood, who obtained a British patent in 1905, followed by a United States patent in 1906, was the first to suggest laminated glass as we know it today. Wood's invention consisted in providing two sheets of glass between which was fixed or cemented a sheet or film of any transparent adhesive substance or material with sufficient elasticity to prevent scattering when broken, and to provide an "agglutination" or hanging together of the parts. As the non-brittle medium, Wood used a sheet of pyroxylin plastic and cemented it between the two sheets of glass with Canada balsam. Apparently, nothing became of Wood's invention commercially, for it was not until five years later, in 1910, when Benedictus, a Frenchman, obtained

both French and British patents, that any real effort was made to produce a laminated non-shatterable glass. Benedictus also used pyroxylin plastic material as the non-brittle medium, but substituted gelatin as the cementing or bonding agent. Actual production on a small scale by the Benedictus process was begun in England in 1913 and was greatly stimulated by the advent of the World War, resulting in the manufacture from laminated glass of goggles, gas-mask eye-pieces, airplane shields, etc. During the next few years, further patents were granted to Benedictus both abroad and in the United States. Under the stress of war-time requirements, little time or thought was given to extending or improving the process. The product, although of considerable service for the purposes referred to, was not of such quality as to appeal to the private automobile trade. It was of relatively poor appearance, had a tendency to separate after being in service a short while, quickly discolored, and was relatively costly.

SHORTLY after this development in England, several operations were started in this country in making goggles and other objects, but it was not until 1927 that any concerted effort was made to manufacture laminated safety glass for automobile wind-shields. The increasingly large proportion of injuries resulting from flying glass in automobile accidents added impetus to the development in this country of a more satisfactory product than had heretofore been known.

Many were the difficulties encountered, for the product requires the welding into one integral body of two dissimilar materials, glass and an organic non-brittle plastic sheet. While sheet glass, of course, was a standard product, the pyroxylin plastic of the type required, was deficient in strength, light and heat stability. All of us have seen some of the early wind-shields where the pyroxylin sheet had not only become brown in color, but had separated from the sheets of glass. Obviously, such laminated glass not only interfered with the vision of the car driver, but lacked the protection for which it was designed. Untiring effort and research on the part of the manufacturers of pyroxylin plastics resulted in greatly improved clarity, transparency and stability.

While sheet glass served for all practical purposes in the laminated structure, the use of plate glass in the more expensive cars soon created a demand for plate in the cheaper ones. This necessitated the manufacture of greater quantities of the special-thickness plate than had previously ever been considered. Due to the foresight and courage of the plate-glass manufacturers in investing the vast amount of money necessary for machinery and equipment, they were able to meet this demand.

In evaluating this item alone it must be borne in mind that the standard plate-glass wind-shield is approximately $^1/_4$ inch thick, so to produce laminated glass to fit the wind-shield frames it is necessary to make the glass sheets each approximately one-half this thickness. When we consider the brittleness of glass, we can comprehend the difficulties of grinding and polishing large sheets only $^1/_8$ inch thick. It is of necessity a comparatively slow operation so that the enormous investment could only be undertaken by large manufacturers able and willing to carry the financial load.

ACTUAL commercial production of laminated safety glass began in the United States in 1927 and has been steadily growing ever since, until today, the production is something over fifty million square feet per year. At that time, the amount of safety glass offered for sale was insufficient, so one large automobile concern obtained a license to manufacture a portion of its own requirements. In the meantime, two very large glass companies were getting into production to supplement the supply offered by the original manufacturer in this country. Today, due to consolidations, practically the entire production of this country is in the hands of the two glass concerns and the one automobile manufacturer.

As an indication of the steady increase in the use of safety glass by automobile manufacturers, it is interesting to note that in 1932, 20 per cent of the cars were equipped with at least wind-shields, in 1933, 40 per cent; 1934, 60 per cent, and 1935, 75 per cent. These figures are only approximate, of course.

There are three types of laminated glass, all made by the same general process: Decorative glass wherein a colored and imprinted plastic sheet is interposed and cemented between two sheets of colorless glass to obtain artistic effects; bullet-proof; and laminated safety glass. The first is of minor importance, so no further description will be given.

Bullet-Proof Glass

Bullet-proof glass consists essentially of three sheets of glass and two of plastic material, the center of the sandwich being a thick plate of glass, to each face of which is cemented a sheet of transparent plastic, and then a thin sheet of glass, the whole is bonded under heat and pressure into a unit body approximately $1^1/_8$ inches thick. The impact of a bullet smashes through the first layer of glass and plastic and expends its

energy in penetrating the thick glass plate. The remaining sheets of plastic and glass serve as the protecting medium.

Safety Glass

As previously stated, actual production of laminated safety glass for automobiles began on a commercial scale in this country early in 1927. Briefly, the process employed was that invented by Benedictus, wherein two sheets of glass, after being thoroughly cleaned and dried, were sprayed or otherwise coated on one side with a solution of gelatin, and then allowed to dry. Inasmuch as the degree to which this "skin-coat" was dried was of prime importance, care was necessary properly to control the humidity and temperature. Sheets of pyroxylin plastic, after being cut to proper size and shape and "aged" in an air-conditioned cabinet, were dipped in a suitable "wetting" agent, placed between the gelatin-coated faces of the sheets of glass, and the sandwich thus formed was hot-pressed. Temperatures, pressures, and time cycles varied, but a suitable ration may be stated as 230° F. at 150 pounds per square inch for 8 minutes.

The presses used were of the standard hydraulic multiple-platen type, the platens being heated by either steam or hot oil, and the temperature carefully controlled by the usual methods. Generally the presses were fitted with platens having absolutely flat faces, although claims were made for slightly convexed surfaces. With the latter design it was claimed that the "wetting" agent would be more satisfactorily removed from the sandwich, since the pressure would be applied first at the center and gradually extend toward the edges. However, with the selection of the proper "wetting" agent and assembly of the sandwich, it was found perfectly practical to use flat-faced platens.

The term "wetting" agent is intended to cover any liquid which, under the action of heat, acts as a partial solvent or plasticizer of both the skin-coat on the glass and of the plastic sheet. Many such liquids and combinations have been used and suggested, among them castor oil, triacetin, diethyl phthalate, dibutyl phthalate, "Cello-solve," "Carbitol," etc. Proper consideration must, of course, always be given to the vapor tension, and boiling-point of the liquid as well as to the solvent power it exerts on the two surfaces.

AS AN indication of the amount of research expended on the problem of producing a satisfactory laminated safety glass, it may be noted that over 300 patents have been issued in this country to date, the majority of them since 1930.

As bonding or cementing agents for use between the plastic sheet and the glass, practically every liquid solvent and plasticizer known has been experimented with, as well as many gums and resins, both natural and synthetic, with varying degrees of success. Research is constantly being carried on to improve even the present high degree of efficiency.

After the sandwich has been pressed, it is wiped clean of the "wetting" agent and passed through a machine which undercuts the plastic around the edges to a depth of approximately $^1/_8$ inch. The undercut edges are then filled with a sealing compound which is generally of an asphaltic nature, although many plastic materials and varnishes have been suggested. For obvious reasons, a colorless edge-seal would have its advantages, but so far none has appeared to any extent in the safety glass on the market. This edge-seal is necessary to prevent moisture, either as humidity or rain, from coming into contact with the edges of the cellulose plastic which, as is well known, is hydroscopic. The same may be said for the skin-coat on the glass. Entrance of water at the edges very quickly causes a "let-go," that is, a separation of the glass from the plastic.

Following the sealing operation, the sandwich is passed through a continuous machine which grinds off and polishes the edges, resulting in the finished laminated safety glass of commerce.

IN WHAT has been said, only pyroxylin has been mentioned as the non-brittle medium, although many other materials have been suggested, some indicating possible future success. Among such have been mentioned "Cellophane," rubber, synthetic resins, fabrics rendered transparent, esters of acrylic and itaconic acid, etc. However, while many are still being experimented with, no non-brittle transparent, colorless plastic sheet has yet been commercially produced having tensile and shearing strengths comparable to those of the cellulose plastics, aside from light, heat and cold stability.

While many millions of square feet of safety glass were being made with pyroxylin, extensive experimental work was going forward to produce a cellulose-acetate sheet of suitable clarity and temperature-plasticity coefficients, for it had been early realized that the nitrate had the very undesirable property of gradually discoloring with use in a car. This discoloration was due to the action of both ultraviolet and infrared rays of the sun, partially decomposing the nitrate base and setting free oxides of nitrogen. Although possible, it was not found practicable by the glass manufacturers to produce a special glass which would filter out the greater portion of these rays. Intensive research by the manu-

facturers of pyroxylin plastic unquestionably greatly improved the product, but it still discolored.

The then available cellulose acetate in sheet form was experimented with, but, while it held its color well, it was lacking in tensile and shearing strength, flexibility (particularly at low temperatures), clarity, and was quite a deal higher in cost. These drawbacks were eventually overcome by the development of a satisfactory plasticizer and a new method of sheeting the plasticized acetate. Added to this was the development by the safety glass manufacturers of new and more satisfactory adhesives or cementing agents, so that today, the major proportion of laminated safety glass is made with cellulose acetate plastic as the non-brittle medium.

To indicate some of the reasons for the improvement and reduction in cost of acetate, it might be well roughly to compare the methods used to produce the sheets of both nitrate and acetate. The general method for producing pyroxylin sheets is to hot-press plasticized cellulose nitrate into a large block, and then to cut into sheets on a machine similar to the ordinary planer. After sheeting, the sheets are placed between highly polished metal plates and again hot-pressed so as to polish them. After this they are individually inspected under Cooper-Hewitt lights for dirt specks and haze, for obviously neither dirty nor hazy sheets can be used for the purpose desired. The selected sheets are then placed in air-conditioned cabinets to age, during which period most of any residual solvent evaporates and the sheets attain equilibrium and are ready for shipment.

On the other hand, the acetate plastic in solution form is well filtered and formed into sheets by one of several methods. One method is to extrude in sheet form of practically any width desired by the safety glass concerns, to whom it is shipped in a roll. Due to this method of production, no inspection is required, and since no defects occur, no polishing is necessary. Furthermore, due to the flexibility of the sheeting process, less scrap results from cutting to size and shape in the glass plant. It is obvious that the elimination of these factors alone results in considerable saving in both time and money. Of course, cellulose nitrate plastic can be sheeted in a similar manner, and also by the method used in making film stock, but it still has the drawback of the nitrate base.

From a tensile and shear standpoint, the acetate sheeting is not quite as strong as the nitrate, but this deficiency may be compensated for by using slightly thicker sheets. However, a long series of comparative

tests has proved that, for all practical purposes no increase in thickness is necessary.

IN DUE time, new and better plastic materials for this and other purposes will be developed, but to date cellulose acetate, with its high stability to light and heat variations, coupled with its transparency and strength is the best non-brittle medium we possess for fabricating laminated safety glass.

While the above developments were progressing, research along engineering lines was going forward toward simpler and quicker methods of hot-pressing the sandwich, for to load and unload multiple-opening presses was of itself a big job when we consider the rapidly growing demand for the product. This research resulted in the development of an autoclave process whereby the build-up sandwiches, after a preliminary "squeeze," are placed in racks and lowered into autoclaves; the necessary temperature and pressure being applied through a suitable liquid medium. This method permits of the processing of a large number of sandwiches at a perfectly uniform temperature, pressure, and time cycle at less cost than formerly.

During the entire process, strict chemical and physical control is maintained over all raw materials as well as over the finished product. This involves analyses of acetate stock, solvents, plasticizers, etc., determinations of moisture and residual solvent in the plastic sheets, and such physical determinations as plasticity, tensile and shearing strengths, resistance to impact, stability to light, heat, and cold. The latter are made necessary because the finished product must withstand the bright sunlight and heat of the tropics, as well as the bright light and intense cold of the arctic zones.

While I have in this short period only indicated the many problems involved, I hope I have said sufficient for you to realize the amount of chemical research and development necessary before the high-grade product we see today became possible. There is still much to be done toward the development of better adhesion between the glass and the plastic sheet. Perhaps the ideal laminated glass structure would consist of two sheets of glass between which a definite amount of colorless, transparent and thermoplastic material, having a zero water-absorption coefficient, would be allowed to flow, and which, upon cooling, would adhere firmly to the two sheets of glass, thus eliminating both adhesives and edge seals, and producing a coherent unit.

Every member get a member.

Professional Ethics

By Jerome Alexander, F.A.I.C.

"The chemical profession is fortunate .... It deals with data .... which can be checked."

THE Standard Dictonary defines "ethics" as "the science of the morally right;" and more particularly, as "the principles of morally right and wrong conduct and character, as expounded by a certain person or school, or as applied in a given set of circumstances, or mode of life, or calling; as, the *ethics* of Hegelianism, medical *ethics*, the *ethics* of the legal profession, etc."

This indicates that the mere pronunciamento of some official body, in any profession, could establish, by definition or by the precedents of decisions in particular cases, a "code of ethics;" and in fact, something of the kind often happens. But sometimes official bodies declare as ethical, actions which are not in accord with what well-intentioned and disinterested men regard as morally right. To put it baldly, it is quite possible to have an unethical "code of ethics," or to have it include unethical rules or canons. Those whose keenness of ethical sense forces them in advance of the current average often rebel, as did Whittier in his poem "The Sabbath Scene," where he burst out:

> "Than garbled text or parchment law
> I know a statute higher;
> And God is true though every book
> and every man's a liar."

A few practical instances will serve to illustrate.

The Ethics Committee of a legal association sat in judgment on the following situation: One of its members requested a political leader to locate for him a Judge before whom this lawyer could present a certain application. The leader did so, and the Judge granted the application. The Ethics Committee decided that the political leader (over whom it had no jurisdiction) should not have spoken to the Judge; but it failed to find anything wrong in the action of its own member, who requested this communication. I wonder how this precedent affects the ethics of the legal profession?

Again, a prominent surgeon operated on a woman; but as her suffer-

ings continued despite what was claimed to be a successful operation, she consulted other local physicians without avail. Stricken while abroad, an X-ray plate at once revealed the presence of an artery clamp left in her abdomen at the time of the original operation. Its removal restored her to health, and she sued for malpractice, only to be nonsuited under the Statute of Limitations, despite her plea that the best medical authorities she had consulted had failed to reveal the truth to her. If the physicians she consulted purposely refrained from taking X-ray pictures in order to protect the surgeon, should their action be considered ethical?

Some curious quirks of medical ethics are understandable on the basis of the fact that between physician and patient there is a *psychological* relation. In many cases, the main feature of the cure is *confidence* in the physician. If confidence in the medical profession, as a whole, be shaken, then, it is argued, not only will the employment of physicians diminish, but disease and death will actually be the gainers. But, as the old saying has it, "murder will out;" and the greatest physicians are the first to admit their own lack of perfection. As public education increases, the truth may be spoken with greater and greater safety, even though in individual cases a patient may ethically be misinformed as to his blood-pressure, for example, on the assumption that the truth would actually harm him.

LAWYERS regard it as ethical to try to secure complete liberty for a man they *know* to be guilty. Some patent attorneys see nothing wrong in wrangling a patent from incompetent examiners, or in concealing from the patent office facts which would show anticipation, despite the fact that an invalid patent, in the hands of financially strong people, may become the means of oppression and aid in depriving many of their just rights. The view has been voiced that law frequently degenerates into legalism. In a recent address, Judge Benjamin N. Cardozo said:

"If my brethren of the bar have been banished from the Eden in which they roamed once upon a time carefree and unafraid, it is not the sword of jurisprudence that has driven them afar. The sword that has disturbed their idyllic ease is a changing civilization with accumulating precedents and the call for a new philosophy of law, a new juristic method, to bring order out of chaos." Referring to the noble traditions and principles of the law, "not always the truth as seen and realized in conduct, but none the less the chief thing about the profession, the thing that makes it worth while, the thing that ennobles it, the thing that it really is in its best and truest moments, the thing without which, we

may be sure, it would wither and die"—referring to this "myth," Judge Cardozo says:

"We are fallen on days that are spoken of by many as cynical and sordid. The profession is given over, we are told, to the pursuit of power and pelf. Let us beware of underestimating the springs of altruism and energy that lie ready to be released at the call of a great example, the summons of an urgent need. It has been given to you and me to prove in our own lives that the truth is in the myth and not in the sordid appearances, at times misnamed reality, which hide what is within."

The chemical profession is fortunate in this: It deals with data the correctness of which can be checked and rechecked, not only by the original person who determined the data, but by independent critical observers as well. In medicine, owing to the complexities of each case, it is hardly possible to say that one case is precisely like another, nor is it possible to repeat any treatment or to say that another kind of treatment would certainly have saved a certain patient. And as for the law, Joseph H. Choate, when asked his opinion on a doubtful point, said. "The Court of Appeals will have the last guess." The essential basis of ethics among chemists, apart from the principles common to all gentlemen in all professions, is this: Their data should be of such accuracy as the case may demand and be so correct that they will stand check and recheck; and the conclusions drawn from the data should be proper, temperate, reasonable, and directed toward honorable and legitimate ends.

THE CHEMIST wishes all its readers a Happy and Prosperous New Year

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October Meeting

The one hundred and twenty-fifth meeting of the Council of THE AMERICAN INSTITUTE OF CHEMISTS was held at The Chemists' Club, 52 East 41st Street, New York, N. Y., on October 17, 1935, at 6:30 P. M.

In the absence of Dr. Crossley, Dr. Lloyd Van Doren acted as Chairman. The following councilors and officers were present: Messrs. R. A. Baker, F. G. Breyer, A. P. Lee, H. R. Moody, H. S. Neiman, W. T. Read, L. Van Doren, F. W. Zons, and Miss F. E. Wall. Dr. Max Trumper was present as a representative of the Pennsylvania Chapter. Miss V. F. Kimball was also present.

The minutes of the previous meeting were approved. The Treasurer's report, showing a cash balance of $492.02, was read and accepted.

Dr. Neil E. Gordon was reinstated to Fellow membership in the Institute.

The Secretary read a letter from Carl G. Amend thanking the Institute in behalf of his father, Otto P. Amend, for his election to honorary membership in the Institute.

The Secretary read a letter from Harold Janousky regarding employment, and the letter was referred to Mr. Bhagwat of the Committee on Unemployment and Relief.

The Secretary read a letter from Dr. E. S. Johnson regarding employment and was requested to reply that the Council is aware of the situation through its representatives on the Committee on Unemployment and Relief, and is attempting to find a position for him.

Dr. W. T. Read reported progress for the Committee on Membership.

Upon motion made, seconded and carried, it was decided to convene the meetings of the Council at 5:30 P. M. on the third Thursday of each month instead of at 6:30 P. M.

Dr. Zons, as Chairman of the Committee for Institute Representation at the Chemical Exposition, announced that space at the Exposition was allotted free of charge to the Institute through the courtesy of Mr. Roth.

Mr. Alan Porter Lee offered to contribute $25.00 toward the rent of furniture, etc., for the Institute's booth. Upon motion made, seconded, and carried, his offer was accepted with thanks.

The following new members were elected:

FELLOWS

AUSTIN O. ALLEN, *General Superintendent*, A. C. Horn Company, 43-42 10th Street, Long Island City, N. Y.

FRANK J. ANDRESS, *Professor of Biochemistry*, Eclectic College of Medicine, Cincinnati, Ohio.

HOWARD L. BENDER, *Research Chemist*, Bakelite Corporation, 230 Grove Street, Bloomfield, N. J.

ALVIN P. BLACK, *Professor of Agricultural Chemistry*, Department of Chemistry, University of Florida, Gainesville, Fla.

FRANK P. BROCK, *Research Engineer*, Bakelite Corporation, 230 Grove Street, Bloomfield, N. J.

WILLIAM R. CATLOW, JR., *Research Chemist*, Bakelite Corporation, 230 Grove Street, Bloomfield, N. J.

KIRK T. HOLLEY, *Chemist*, Georgia Experiment Station, Experiment, Ga.

VIRGIL E. MEHARG, *Research Chemist*, Bakelite Corporation, 230 Grove Street, Bloomfield, N. J.

JACQUE C. MORRELL, *Associate Director Research*, Universal Oil Products Company, 310 South Michigan Avenue, Chicago, Ill.

CASH B. POLLARD, *Associate Professor*, Chemistry Department, University of Florida, Gainesville, Fla.

MALCOLM F. PRATT, *Paint Technologist*, Socony-Vacuum Oil Company, Inc., 412 Greenpoint Avenue, Brooklyn, N. Y.

HORACE E. RILEY, *Analyst, Research Chemist*, Bakelite Corporation, 230 Grove Street, Bloomfield, N. J.

RALPH C. SHUEY, *Research Chemist*, Bakelite Corporation, 230 Grove Street, Bloomfield, N. J.

NORMAN A. SKOW, *Research Chemist*, Bakelite Corporation, 230 Grove Street, Bloomfield, N. J.

ROBERT C. SWAIN, *Research Chemist*, American Cyanamid Company, Tremley Laboratory, Box 157, Linden, N. J.

VICTOR H. TURKINGTON, *Research Chemist*, Bakelite Corporation, 230 Grove Street, Bloomfield, N. J.

HAROLD F. WAKEFIELD, *Research Chemist*, Bakelite Corporation, 230 Grove Street, Bloomfield, N. J.

ARCHIE J. WEITH, *Associate Director of Re.earch*, Bakelite Corporation, 230 Grove Street, Bloomfield, N. J.

L. R. WHITING, *Chemist*, Bakelite Corporation, 230 Grove Street, Bloomfield, N. J.

ASSOCIATES

FRANK B. BURNS, *Research Chemist*, U. S. Gypsum Company, 23 South Damen Avenue, Chicago, Ill.

GEORGE JERZYKOWICZ, *Research Chemist*, Color and Farm Waste Division, U. S. Department of Agriculture, Washington, D. C.

FRANCIS G. METRO, *Technical Engineer*, The Porter Chemical Company, Prospect and Pennsylvania Avenues, Hagerstown, Md.

JUNIORS

LEO H. CROSSON, *Chemist*, S. C. Surface Waters Project, Box 57, Clemson, S. C.

LUCY T. PORCELLI, *Technician*, Swedish Hospital, 126 Rogers Avenue, Brooklyn, N. Y.

STUDENT

WILLIAM G. ROUGHEAD, Bakelite Corporation, 230 Grove Street, Bloomfield, N. J.

November Meeting

The one-hundred and twenty-sixth meeting of the Council of the AMERICAN INSTITUTE OF CHEMISTS was held at The Chemists' Club, 52 East 41st Street, New York, N. Y., on November 21, 1935, at 5:30 P. M.

President M. L. Crossley presided. The following officers and councilors were present: Messrs. R. A. Baker, H. T. Clarke, M. L. Crossley, H. G. Knight, A. P. Lee, H. S. Neiman, W. T. Read, C. W. Rivise, N. A. Shepard, and Miss F. E. Wall. Miss V. F Kimball was also present.

Upon motion made and seconded, the following new members were elected:

FELLOWS

AUBISON T. BURTSELL, *Teacher*, College of the City of New York, New York, N. Y.

ARTHUR M. BUSWELL, *Professor*, University of Illinois, Urbana, Ill.

WILLIAM H. BUTLER, *Research Chemist*, Bakelite Corporation, Bloomfield, N. J.

VERNON K. KRIEBLE, *Professor*, Trinity College, Hartford, Conn.

TOWNES R. LEIGH, *Head*, Department of Chemistry, University of Florida, Gainesville, Fla.

NEIL F. MACDONALD, 1425 E. 60th Street, Chicago, Ill.

V. N. MORRIS, *Research Chemist*, Resinous Products and Chemical Co., Philadelphia, Penna.

RALPH C. WILBUR, *Refinery Chemist*, Shell Petroleum Corporation, Wood River, Ill.

ASSOCIATES

RAYMOND C. BACON, *Research Chemist*, Calco Chemical Company, Bound Brook, N. J.

WALTER W. DURANT, *Chemist*, American Cyanamid Company, Linden, N. J.

DONALD L. FULLER, *Research Chemist*, American Cyanamid Company, Linden, N. J.

MARTIN E. HULTQUIST, *Research Chemist*, Calco Chemical Company, Bound Brook, N. J.

MORRIS MARGOLIS, *Junior Chemist*, Employed by Borough President of Manhattan, Room 2125, Municipal Building, New York, N. Y.

LEONARD P. MOORE, *Research Chemist*, American Cyanamid Company, Linden, N. J.

JOHN S. ODELL, *Chemist*, N. Y. State Racing Commission Laboratory, Room 1105, 157 Chambers Street, New York, N. Y.

RICHARD O. ROBLIN, JR., *Research Chemist*, American Cyanamid Company, Linden, N J.

STUDENT

CARL L. ENGELHARDT, *Chemist*, Brooklyn Varnish Mfg. Co., 35 Nostrand Ave., Brooklyn, N. Y.

The Treasurer's report, showing a cash balance of $839.96, was read and accepted.

The Committee to select a place of the next annual meeting reported that Buffalo, New York, had been chosen. Upon motion made and seconded, the selection of the committee was approved.

Upon motion made and seconded, the following uses of the INSTITUTE emblem were approved: The emblem should be used on official stationery; it should be used on the front cover of THE CHEMIST and elsewhere in THE CHEMIST, if desirable; the matter of the selection of a pin or button bearing the emblem was referred to the Committee on Insignia; the emblem should appear on all INSTITUTE publications and printed matter; the emblem should appear on the INSTITUTE's booth at the Chemical Exposition; where practical, the emblem should appear in the INSTITUTE's colors of green and gold.

New York Chapter

A meeting of the New York Chapter of THE AMERICAN INSTITUTE OF CHEMISTS was held December 13, 1935, at The Chemists' Club, New York, N. Y. J. W. H. Randall, F.A.I.C., spoke on "Some Chemical Aspects of the Laminated Glass Industry." His talk is published in this issue of THE CHEMIST. The meeting was preceded by a dinner at the Chemists' Club.

Niagara Chapter

The Niagara Chapter held a symposium on patents at its regular meeting on November 15th, at the Red Coach Inn, Niagara Falls, N. Y.

M. C. Taylor introduced the subject by presenting an outline of the history of the present patent set-up in the United States including its beginnings in 1790, when it was customary for the committee sitting in judgment on a patent application to include within its membership the Secretary of War and the Attorney General of the United States. In 1836 the Patent Office was transferred from the Department of the Interior to the Department of Commerce. Up to 1900, 640,000 patents had been granted. Today patents are being granted at the rate of 40,000 a year or nearly one every fifteen minutes. Furthermore, the use of patents is becoming more nation wide, not necessarily because each one represents something entirely new, but more because many of them present new and indispensable improvements over existing processes or other inventions.

Malcolm K. Buckley, the guest speaker, a member of a local firm of patent lawyers, spoke on "The Legal Phases of Patents." Dr. Buckley likened a patent to a dog, it has a bark to scare and a bite to actually fight with. Some patents like some dogs, have more of one than the other, but a good patent like a good dog will have some of each.

Should a patentable idea be patented? Yes, by all means, it should. A patent is not a monopoly. It takes nothing from the public that the public actually had previous to issuing of the patent. Only the inventor possessed the idea and he is protected in his rights by the use of the patent system. It is actually a contract, the patentee being granted the exclusive right to manufacture or use something. He will be asked first, is it new, and second, is an actual invention involved?

What should be patented? Everything should be patented that is new and that represents a clear-cut invention, although an idea is actually just as saleable as a patent.

When should a patent be applied for? Application should be made just as soon as available information shows the widest possible application. When the invention is completed and the inventor knows as much of its future as he ever will before patenting, he should make application for his patent. It is not necessary to do this so soon however. Even if the material has been published, the inventor can still patent, providing not more than two years have elapsed—two years after publication or since the beginning of commercial use. The patent may make from one to a couple of hundred claims, corresponding generally to the meets and bounds of a piece of property in a deed, and describing the scope of the invention. Each of these claims is directed to some one phase which is itself patentable. Nowadays it is possible to disclaim any one or more of these claims or suffer any one or more of them to be declared null and void without affecting the validity of the remainder of the patent.

The losing defendant in an infringement case usually is liable for all his profits, but unfortunately evasion has sometimes been accomplished in the past by such an organization disbursing its profits in the form of dividends to stockholders before litigation has been consummated. The stockholders are not liable.

As for patents in foreign countries, this often depends on circumstances. At any rate the question should be decided quickly. If the patentee has foreign branches or associates, the answer is "Yes." Also "Yes," if he has "swapping" arrangements with concerns in foreign countries. Otherwise there does not seem to be any great need for indiscriminate foreign patenting. For one reason, almost all foreign countries tax patents.

As for the enforcement of a patent there is only one method, that of court procedure. Very few cases exist in which unbiased professional opinion has ever been sought by a judge, and the fact that so much testimony is often introduced by opposing advisers which is of a contradictory nature undoubtedly tends to cloud the issue; but on the other hand, each side knows for a certainty that its advisers are giving their best for their case. There is no suspicion that a supposedly disinterested scientific adviser actually has prejudices one way or the other, or actually is ill-advised himself on some matters. Patent cases are not tried in courts set up expressly for that purpose. If such courts were to be organized, undoubtedly their numbers would be restricted, necessitating long distance traveling on the part of the litigants—a rather needless expense of time and money. What evidence would there be that greater general satisfaction would then be obtained as compared with that given by the present system? Even now it is possible that a suit could drag itself out over five years or more, entailing costs of say $40,000.00 for a $10,000.00 judgment, but at least the patent has been tested and if found satisfactory, the rest of its lifetime is comparatively smooth sailing.

A. W. Burwell summarized and brought out a few more examples of doubtful situations, all of which stimulated an animated discussion: Dr. Burwell commented that as far as ideas were concerned, it might be true as had been said that they too were saleable but that most companies preferred to buy patents or patents-applied-for.

Pennsylvania Chapter

The first meeting of the 1935–1936 season was held at the Engineers' Club on Tuesday evening, December 12th. Dr. Trumper, the new chairman, presided.

The purpose of the meeting was to discuss the types of programs for the rest of the season. Dr. Tyson expressed the opinion that the program should partake more of a chemical nature than recently. There are many subjects, particularly on the borderline, which are not usually discussed by technical societies, and these subjects should be included in the program of the Chapter.

Dr. Trumper stated that the INSTITUTE was still in a formative stage and different types of programs should be tried. Dr. Stericker suggested borderline papers of a historical nature and also those relating to general industry.

After considerable discussion, it was decided to sponsor two public meetings at the Franklin Institute, one for College students and the other for High School seniors. Both are to have for their main purpose vocational guidance, differing merely in the type of papers presented. The High School seniors will

be given general talks on chemistry while the College students may have a symposium.

The following places were suggested for the Spring trip: Girard College, Philadelphia Navy Yard, Continental Distilling Company, Botanical Gardens (University of Pennsylvania), Fels Naphtha Soap Company. Dr. Trumper suggested that joint meetings be held with other technical groups such as the Metabolic Association, Botanical Chemists, Pennsylvania Academy of Science, Academy of Natural Sciences, Photographers, and the various Cancer groups.

The tentative program for the year decided upon at the meeting includes: Two meetings devoted to chemical discussions of broad fundamental character, one symposium, two public meetings for vocational guidance of College and High School students, one trip (probably to the Arboretum).

The Medal Award to seniors in chemistry at recognized colleges and universities was discussed. It was suggested that the award be announced at one of the public meetings, but that it be given at another meeting. Dr. Lukens, Dr. Tyson and Dr. Bancroft were appointed as a committee to consider the entire question of awards. The secretary was directed to write to Mr. Lundstrom of the Washington Chapter in reference to his method of approaching the colleges concerned.

Dr. Tyson suggested that members of the INSTITUTE be required to join the American Chemical Society. This subject was postponed until the next meeting.

Dr. Trumper suggested that the members write short articles on their particular subjects for THE CHEMIST. This would give them an opportunity to try their ideas out on a very select group.

Dr. Tollen of the Interprofessional Association for Social Insurance gave a brief talk on the purposes of his group and invited the Chapter to send a delegate to a conference to be held November 23rd and 24th, in Philadelphia at the Social Service Building. The purpose of the conference is to determine the future policies of the Association and may result in a reorganization. Mr. Cayo was appointed to represent the Chapter at the conference.

On October 26, 1935, the members of the Pennsylvania Chapter and their friends visited the National Farm School. The School is located in Bucks County, one of the richest agricultural districts in Pennsylvania; 26 miles north of Philadelphia and one mile west of Doylestown. It was founded 39 years ago by Rabbi Joseph Krauskopf of Philadelphia, who conceived the idea of taking city boys and giving them a thorough practical and scientific education in agriculture so as to benefit the country at large. It started as a farm of 122 acres and has had a steady healthy growth, until today the plant consists of 1,300 acres, including many acres devoted to orchards and nursery stock. There are 175 head of cattle, mostly pure-breds, 30 horses, 12,000 square feet of greenhouses, and a poultry farm with a 10,000 egg incubator capacity, 5,000 brooding chick capacity and laying houses for 3,500 hens.

The campus with its ornamental landscaping and spots of natural beauty is unusually attractive. Its buildings are modern and the students have ample facilities for work, study and recreation. There is a large waiting list due to the fact that the dormitories can accommodate only about 190. The growth of the school can be gauged by the fact that it started with an enrolment of 15 students and its first graduating class was 7. The graduating classes at the present time are about 50.

The visitors had an excellent opportunity to see the students at both work and play. The first event on the program was a football game between the Farm School and the Mt. Alto School of Forestry, and the last event was a dinner in the dining hall with the students. The rest of the afternoon was spent visiting the various buildings, the incubators and the dairy.

Washington Chapter

The first meeting of the season was held in the Board Room of the Cosmos Club on Friday, November 22, 1935, at 8:15 P. M.

Dr. C. W. Whittaker, the newly elected president, presided. The other newly elected officers were present with the exception of Dr. C. E. Munroe, Honorary President. A letter from Dr. Munroe was read which stated that he greatly appreciated the honor of again being elected to the Honorary Presidency of the Washington Chapter, and that it was with the utmost regret that he was unable to attend the meetings with his accustomed regularity due to his advanced age.

A most interesting and instructive address was presented by Dr. Sterling B. Hendricks, of the Department of Agriculture, on "Contributions of X-rays to Chemistry." Dr. Hendricks is an outstanding expert in this field and the excellence of his address is indicated by the animated discussion which took place after the lecture. An unusually large attendance presages a renewed interest in the INSTITUTE's activities. A number of visitors, mostly from nearby universities, was noted. Two of the 1935 student medallists, Louis R. Heiss of American University and Harry L. Clark of George Washington University were present, and were vigorously applauded when introduced by the Chairman.

A report on the results of the Student Medal awards was made by the Secretary, Mr. F. O. Lundstrom. Other necessary business was transacted. The meeting must be counted as one of the Chapter's most successful convocations and a forerunner, it is hoped, of many more equally successful.

Our New Members

RAYMOND CHARLES BACON, A.A.I.C., obtained the B.S. degree from Princeton, and the Ph.D. from Leland Stanford. He has also studied at the Veterinary and Agricultural College of Copenhagen. He is employed as research chemist by Calco Chemical Company.

AUBISON T. BURTSELL, F.A.I.C., received the M.Sc. degree from New York University, and is completing work for his Ph.D. He is teacher of chemistry at the College of the City of New York.

ARTHUR M. BUSWELL, F.A.I.C., has the B.A. degree from the University of Minnesota; the M.A. degree from Maine, and the Ph.D. from Columbia. Specializing in water treatment, anaerobic fermentation and colloids, he has published numerous articles, including a monograph on the chemistry of water and sewage treatment. He is professor of chemistry at the University of Illinois, Urbana, Ill.

WILLIAM H. BUTLER, F.A.I.C., stud-

ied at Pratt Institute. Specializing in phenolic resins, he has published, in collaboration, a number of technical articles on this subject. His position is: Research chemist with the Bakelite Corporation, Bloomfield, N. J.

WALTER W. DURANT, A.A.I.C., studied at Rensselaer Polytechnic Institute. His specialty is synthetic resins. He is employed as chemist by American Cyanamid Company at Linden, N. J.

CARL L. ENGELHARDT, S.A.I.C., is studying at Pratt Institute. He also works as chemist with the Brooklyn Varnish Manufacturing Company, Brooklyn, N. Y.

DONALD L. FULLER, A.A.I.C., received the Ph.D. degree from the University of Minnesota. He specializes in physical chemistry, especially high pressure solubilities, Van der Waal's forces and quantum mechanics, on which he has written several articles. He is research chemist with American Cyanamid Company, Linden, N. J.

MARTIN E. HULTQUIST, A.A.I.C., obtained the Ph.D. degree from the University of Colorado. His preferred field is pharmaceutical chemistry. He is employed as research chemist by the Calco Chemical Company, Bound Brook, N. J.

VERNON K. KRIEBLE, F.A.I.C., holds the Ph.B. degree from Brown University and the M.Sc. and Ph.D. degrees from McGill University. His specialty is catalysis, and he has published a number of articles appearing in the *Journal of the American Chemical Society*. His position: Professor of chemistry at Trinity College, Hartford, Conn.

TOWNES R. LEIGH, F.A.I.C., has studied at Iuka College, Lebanon University, Harvard University, and holds the Ph.D. (cum laude) degree from the University of Chicago. Specializing in pharmaceutical chemistry, he has also contributed to the anthropological study of Indian remains in the South; is the inventor of the Leigh Fog Screen for the protection of vessels from submarines, and the inventor of the placer bomb. He has published many articles on a wide variety of subjects, including his research on chlorimido-esters and chlorimido-benzil. He is head of the department of chemistry, and dean of the college of arts and sciences, University of Florida, Gainesville, Florida.

NEIL F. MACDONALD, F.A.I.C., graduated from Cornell University. Interested in chemical engineering, he specializes in aviation gases, pharmaceutical manufacturing and specification work for chemicals, foods and pharmaceuticals. His address is: 1425 E. 60th Street, Chicago, Illinois.

MORRIS MARGOLIS, A.A.I.C., has a B.S. degree from Cooper Union. He is employed as junior chemist by the Borough President of Manhattan, Room 2125, Municipal Building, New York, N. Y.

LEONARD P. MOORE, A.A.I.C., received the B.Ch.E. degree from the University of Minnesota and the Ph.D. degree from McGill University. Specializing in cellulose, he has published several papers on this and other subjects. He is research chemist with American Cyanamid Company, Linden, N. J.

V. N. MORRIS, F.A.I.C., holds the B.S. and M.S. degrees from Purdue Uni-

versity, and the Ph.D. from the University of Minnesota. Specializing in rubber, synthetic resins and colloids, he is co-editor of "The Science of Rubber," and has published several articles. His position is: Research chemist, Resinous Products and Chemical Company, Philadelphia, Penna.

JOHN S. ODELL, A.A.I.C., graduated from Brooklyn Polytechnic Institute, where he is continuing his studies toward the M.S. degree. Specializing in alkaloidal analysis, particularly as applied in the saliva test for the detection of drugs administered to race horses, he is employed as chemist by the New York State Racing Commission, New York, N. Y.

RICHARD O. ROBLIN, JR., A.A.I.C., has the A.B. degree from the University of Rochester, and the M.A. and Ph.D. degrees from Columbia University. Interested in organic and biological chemistry, he has published several articles, and is research chemist with American Cyanamid Company at Linden, N. J.

RALPH C. WILBUR, F.A.I.C., received the B.S. degree from Beloit College, and has done graduate work at Yale University. Specializing in heavy chemicals and petroleum products, he holds oil decolorization patents. He is employed as refinery chemist by the Shell Petroleum Corporation, Wood River, Illinois.

Applications for Membership

FELLOWS

JOHN H. BELTZ, *Treasurer and Director of Laboratory*, Bell and Beltz, Inc., 3340 N. Broad Street, Philadelphia, Penna.

JESSE LUNT BULLOCK, *Associate Professor*, Clark University, Worcester, Mass.

MARSTON LOVELL HAMLIN, *Patent Attorney*, The Barrett Company, 40 Rector Street, New York, N. Y.

JOEL SMITH HARRIS, *Research Chemist*, Stokes and Smith, Philadelphia, Penna.

RAOUL J. STONER, *Assistant Chemist*, Employed by President of Borough of Manhattan, Room 2125, Municipal Building, New York, N. Y.

WILBUR O. TEETERS, *General Manager*, Hoke, Inc., 122 Fifth Avenue, New York, N. Y.

JOSEPH H. YOUNG, *President*, Chemical Paramount Products Company, 126 Maiden Lane, New York, N. Y.

ASSOCIATES

EMERSON HARRY CONNER, 805 Fifth Avenue, Tuscaloosa, Alabama.

WILLIAM F. FILBERT, *Research Chemist*, E. I. duPont de Nemours Company, Eastern Laboratory, Lock Box B., Gibbstown, N. J.

JUNIORS

MICHAEL RICHARD DE CARLO, *Technician in Chemistry*, Army Medical Center, Army Medical School, Washington, D. C.

MILTON C. KINSTLER, *Surveyor*, Park Department of New York City, Corona Golf House, Queens, N. Y.

NEWS

The Washington Chapter of THE AMERICAN INSTITUTE OF CHEMISTS is pleased to note that its treasurer, Dr. J. H. Hibben, F.A.I.C., has been elected to the Presidency of the Washington Chapter of The American Chemical Society. He is relieving Dr. J. F. Couch, F.A.I.C., who has served as president during the past year. Dr. Couch served with distinction as President of the American Chemical Society's Washington Chapter in the same efficient way in which he acted as President of the Washington Chapter of the American Institute of Chemists a few years ago. Our best wishes are extended to Dr. Hibben for a most successful year.

Michael Werblow, J.A.I.C., was recently appointed teacher of chemistry in the Evander Childs High School, New York.

The American Institute of the City of New York announces the following programs: January 7, 1936, Round Table, Institute Meeting Room, 8 P. M. Topic: The Asylum Passes. Harry Stack Sullivan, Psychiatrist. Ross McClure Chapman, Professor of Psychiatry, University of Maryland. January 16, 1936. General Meeting. Metal Products, Auditorium, International Building, Rockefeller Center, New York, 8 P. M. Topic: The Application of the Scientific Method to Problems of Society. Lyman Chalkley, Benton and Bowles, Inc. Victor Pelz, General Marketing Counselor.

Dr. James F. Couch, F.A.I.C., addressed the Washington Chapter of Alpha Chi Sigma on the subject, "Milk Sickness," at a meeting held on November 16, 1935.

The Corning Glass Company, referring to their new "Lifetime Red" marking for Pyrex ware, tells us that no change in color appeared after such rigorous tests as: Four years of service in the form of Red Letter Reagent Bottles; continuous exposure to steam at 100 pounds pressure for 360 hours (autoclave test); continuous exposure to ultraviolet rays equivalent to more than 1,000 years at the earth's surface; and solubility and heat shock tests usually applied to "Pyrex" brand laboratory ware.

A symposium on "Women's Place in Chemistry" was held at the conclusion of the Fifteenth Exposition of Chemical Industries in New York, December 7th. W. T. Read, F.A.I.C., opened the program of which Florence E. Wall, F.A.I.C. was chairman. Speakers included: Calm M. Hoke, F.A.I.C., M. Helene Lewinsohn, Louise Kelley, Ellen B. McGowan, L. W. Hutchins, Ralph L. Evans and Patricia Edgerly. The general theme of the symposium was that women chemists should use their training not only as hospital technicians but also in industries especially suited to feminine qualifications, such as cosmetics, household arts and sciences, textiles, dyes, child hygiene and medicinal chemistry.

Dr. Henry G. Knight, F.A.I.C., in his annual report as Chief of the Bureau of Chemistry and Soils, U. S. Department of Agriculture, calls attention to the necessity for both pure and applied science to solve the problems of producing, marketing and using agricultural products: "When there is a lack of fundamental knowledge needed to attack a specific problem, such knowledge must first be acquired through research in pure science. The results of such research ..... may have applications in fields other than agriculture."

"Rubber Regulation and the Malayan Plantation Industry" is the title of a 46-page bulletin, Trade Promotion Series No. 159, published by the Department of Commerce. It is based on a report by Vice-consul Harrison Lewis, Singapore, and may be obtained from the Superintendent of Documents, Washington, D. C., for ten cents.

A meeting of the representatives of the sponsoring societies and honorary members of The Committee on Unemployment and Relief for Chemists and Chemical Engineers was held at the Murray Hill Hotel, New York, N. Y., November 12, 1935, at which plans for carrying on the Committee's work were made. The INSTITUTE was represented by W. J. Baëza, F.A.I.C.

The following members of THE AMERICAN INSTITUTE OF CHEMISTS demonstrated their spirit of coöperation by taking charge of the INSTITUTE's booth at the Exposition of Chemical Industries at various times during the week of December second: J. Alexander, W. J. Baëza, D. D. Berolzheimer, M. L. Crossley, K. M. Herstein, D. H. Jackson, E. S. Johnson, F. Kenney, B. H. Knight, H. S. Neiman, G. W. M. Phillips, J. W. H. Randall, F. W. Zons and Miss F. E. Wall.

THE CHEMIST is always glad to receive personal and news items concerning the professional, business and social activities of our members and will appreciate active coöperation by all concerned.

Hans T. Clarke, F.A.I.C., of the College of Physicians and Surgeons, New York, represented that college at the inauguration of Dr. Allen Valentine, on November 15th, as president of the University of Rochester.

C. E. K. Mees, Director of Research and Vice-president of the Eastman Kodak Company, talked on "Color Photography and the Kodachrome Process" before a meeting of the New York Electrical Society, held November 13, 1935.

John A. Schaeffer, F.A.I.C., was inaugurated on December 6, 1935, as president of Franklin and Marshall College, Lancaster, Penna.

The Nobel Prize in chemistry for 1935 was awarded to Frederick Joliot and his wife for their work in producing radioactive substances. Mme. Joliot is the daughter of Pierre and Marie Curie, winners of the Nobel Prize in physics in 1903, for their discovery of radium.

The Sixth National Organic Chemistry Symposium of the American Chemical Society will be held at Rochester, N. Y., December 30th to January 1st. Among the scheduled speakers are Marston T. Bogert, F.A.I.C., "Recent Advances in Our Knowledge of the Carotenoids;" Arthur J. Hill, F.A.I.C., "Syntheses and Chemical Properties of Orthoesters;" and Benjamin T. Brooks, F.A.I.C., "New Evidence for the Low-Temperature History of Petroleum."

Traveling Fellowships in Chemistry Available

The American-Scandinavian Foundation will award Fellowships of $1,000.00 each for graduate study in Sweden, Denmark or Norway. The subjects for study include chemistry, physics, mathematics, agricultural sciences, mining and metallurgy. Candidates must have been born in the United States. It is desirable that they be college graduates and familiar with at least one foreign language, preferably Swedish, Danish or Norwegian. The period of study is one academic year. Application papers, including letters of recommendation and a photograph, must be filed at the office of the Foundation before March 15th. Application papers may be obtained from Neilson Abeel, Secretary, The American-Scandinavian Foundation, 116 East 64th Street, New York, N. Y. A jury of university professors and technical experts appointed by the Foundation will make the final selection of Fellows. The chairman of the jury is Professor William Hovgaard of Massachusetts Institute of Technology. Successful candidates will be notified about April 15th.

Carl A. Nowak

Carl A. Nowak, a Charter Member of The AMERICAN INSTITUTE OF CHEMISTS, died at his home in St. Louis, on November 28th. He was born in Paratue, Austria, in 1887. After coming to the United States, he was graduated with honors from the University of Chicago, and became an instructor in the Wahl-Henius Institute. Later positions included chemical superintendent of William Rahr Sons Brewing and Malt Company of Manitowoc, Wisconsin, and secretary and editor with the Master Brewers Association at Albany, N.Y. In 1916, he established the Nowak Chemical Laboratories at St. Louis. Specializing in fermentation and food chemistry, he was the author of a number of articles and books on brewing, among which were, "Non-Intoxicants," "New Fields for Brewers," and "Modern Brewing." He was also editor and publisher of "The Brewer's Art."

"The time has come," the Walrus said,
"To talk of many things:
Of shoes—and ships—and sealing wax—
Of cabbages—and kings—"
The Walrus and the Carpenter

A.I.C.

It has repeatedly been noticed that some members call our organization the "American Institute." In view of the fact that this name appertains to "The American Institute of the City of New York," an educational institution over one hundred years old, it is suggested that our full title "THE AMERICAN INSTITUTE OF CHEMISTS" be used, with emphasis on "CHEMISTS."

A jolly young chemistry tough,
While mixing a vial of stuff
Dropped a match in a vial
And after a while
They found his front teeth and one cuff.

Send the Editor your favorite chemical limerick.

Midsummer Night's Scheme

"We need a moonbeam along which 100 fairies can dance out of sight into the heavens," was the order Max Reinhardt sent to the technical department when he was directing *A Midsummer Night's Dream*. He got the moonbeam, a path of dazzling light, that weighed seven tons. It was woven from 50,000 yards of cellophane strands that reflected a million-candle-power glow and was strong enough to support 104 persons.—*Popular Mechanics.*

Maggy Nesium, Chloe Reen, Molly B. Denham, Anna Line, and Ann Timmony visited the INSTITUTE booth during the Chemical Exposition. They were chaperoned by Tante Lumm.

Little Willie took a drink,
Little Willie is no more;
What H_2O he did think
Was really H_2SO_4.

Polished Advertising

As an auspice of beatitude to the community, as an omnipotent daily utilized novelty, as a pioneer of the scientific element, as a security to metal, as a short out to the way of prosperity in the commercial world, as an agent to economy of both time and money, is the newly discovered wonderful Polishing Powder that to be heartily welcomed wheresoever.

Despite the heavy sacrifice of capital and the consumption of brains, we have thereby succeeded in researching out the usage of this Polishing Powder.

We lose no promptitude in taking this opportunity to recommend to the attention of the community. This Polishing Powder is the conqueror.—*Circular of a Chinese Company.—Chemical Bulletin.*

Potable Water

Recent research has shown with a fair amount of definiteness that water, which is well known to be an "associating" substance, may be regarded as a mixture or solution of at least three molecular forms, the monomer or monohydrol, the dimer or dihydrol, and the trimer or trihydrol; the last being, probably, the main constituent of the ordinary ice forms.

Reasoning on this, I came to the conclusion that probably many of the unexplained differences in the taste of waters of apparently the same analysis as regards dissolved mineral matters, organic bodies, etc., really rest on differences in the ration of these three components. Experiment bore out the conclusion. Any difference in the ratio of these three components does as a matter of fact make a very distinct difference in the taste. And while taste is of course in a measure a matter of personal idiosyncrasy, yet I may say that I have tried the matter on a number of others with different idiosyncrasies. The general result, broadly speaking, was that with water containing more of the monomer as compared with the dimer and the trimer, the taste became what is described as flat; and the water was not liked as a beverage unless treated with coffee, tea, or something else giving a flavored decoction which would mask this flat taste. On the other hand, an increase in the ratio of the trimer to the other two was universally hailed as improving the taste of the water.

Such an increase in the ratio of the trimer may be very readily secured by allowing a little ice to float in the water.—K. P. McElroy in *Journal of Ingenuous or Almost Chemistry.*

Colors, Not Vitamins!

Are you watching the color of your food, or don't you give it a thought? Perhaps it is sheer ignorance in you that you sit down to a meal improperly contrasted, a meal of all sickly yellows, say, such as chicken soup, calf's liver, squash, sauternes, cornbread and butter, fig pudding, and yellow chartreuse. Not a green anywhere, nor a red, nor even a dirty orange. Well, probably you haven't studied the recent findings of the Kellogg scientists, makers of All-American All-Bran. It seems that the latest way to a balanced diet is through color. Bring the red stewed tomato next to the yellow potato chip; bring the mauve eggplant next to the green broccoli. Then you will grow sturdy and carbohydrated, and the sparkle will come back in your eye. It is quite revealing to learn that certain people whose stomach trouble we had supposed to be attributable to some chemical maladroitness are in fact deficient not calorifically but esthetically.—*The New Yorker.*

A New Class of Fats

"Studien auf dem Fettgebiet."

This represents a collection of the author's researches on the fats in book form.—*From a book review in "Chemistry and Industry."*

Philip B. Hawk, F.A.I.C., has written a book "Streamline for Health," published by Harper & Brothers.

It tells how to reduce one's weight harmlessly, painlessly and healthfully.

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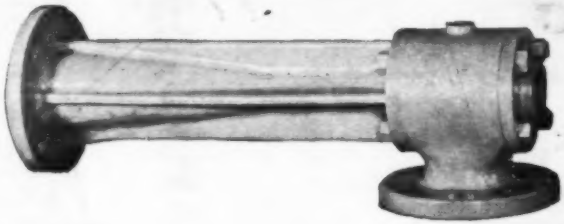

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